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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,147	04/14/2004	Ronald Edward Bretschneider	SJO920030069US1	6375

45216 7590 10/05/2006		EXAMINER
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ART UNIT	PAPER NUMBER
2114	

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/824,147	BRETSCHNEIDER ET AL.
	Examiner	Art Unit	
	LOAN TRUONG	2114	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *14 April 2004*.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-30* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-30* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *14 April 2004* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

1.   Claims 1-9 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

In regards to claims 1-9, the apparatus claimed is defined as provided with a logical unit containing a plurality of modules *(specification paragraph 0006 and paragraph 0026)*. These logical units per se, i.e., describe modules of the programs, which are not physical "things." They are neither computer components nor statutory processes. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer, which permit the computer program's functionality to be realized. Therefore, the specified claims do not fall within the technological arts and therefore, is non-statutory. See MPEP § 2106.

Allowable Subject Matter

2.   Claims 1-9 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 101, set forth in this Office action.

3.   The following is an examiner's statement of reasons for the allowance:

The examiner deem claims 1-9 as novel when read as a whole for the limitations

of a recovery coordination module configured to accept and reject requests from a

recovery module to unregister the recovery module as the counterpart of the first

computer upon request and the recovery module configured to unregister with the

recovery coordination module as the counterpart of the first computer responsive to the

detection module detecting the failure of the first computer.

Any comments considered necessary by applicant must be submitted no later than the

payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee.   Such submissions should be clearly labeled "Comments on Statement of Reasons for

Allowance."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4.   Claims 10-11, 13-14, 16, 20-21, 24-26, 28 and 30 are rejected under 35 U.S.C. 102(a) as

being anticipated by Park et al. (US 2003/0079154).

In regard to claim 10, Park et al. disclosed a system for cluster-wide peer recovery, the

system comprising:

a first computer (*primary server, fig. 5, 504*);

a second computer (*spare server, fig. 5, 505*) in communication with the first computer

configured to detect a failure of the first computer (*fault tolerance module, fault detection, fig. 5,*

503), wherein the second computer registers as the counterpart of the failed first computer

(*duplexing, primary server select spare server, paragraph 0024*), recovers the operation of the

failed first computer (*transition of all functions of the primary server to the spare server,*

paragraph 0031), and unregisters as the counterpart of the failed first computer (*registering the*

spare server as primary and register the fault-recovered server as a spare server, paragraph

0031);

a shared memory controller in communication with the first computer and the second

computer configured to store and retrieve computer component status and log data, the shared

memory controller further configured to prevent unauthorized access to private log data and to

lock data resources (*system monitor and system state collector, fig. 9, 703, 702, paragraph 0078*

and 0079); and

a disk configured to store and retrieve user data and system data in the disk's storage

media for the cluster (*disk array, fig. 1*).

In regard to claim 11, Park et al. disclosed the system of claim 10, the second computer

further configured to initiate peer recovery automatically (*upon detecting a fault of the server,*

the fault recoverer executes a function transition from the primary server to the spare server,

paragraph 0075).

In regard to claim 13, Park et al. disclosed the system of claim 10, wherein the shared memory controller comprises a dedicated processor and a memory module (*system monitor and system state collector, fig. 9, 703, 702, paragraph 0078 and 0079*).

In regard to claim 14, Park et al. disclosed the system of claim 13, wherein the memory module is nonvolatile memory (*disk array, fig. 1*).

In regard to claim16, Park et al. disclosed the system of claim 10, the second computer further configured to block a third computer (*spare server selection only occurs at the start of rejuvenation, fig. 10, s103*) and the first computer (*primary server is excluded from available server list of load balancer, fig. 10, s105*) from registering as the counterpart of the first computer (*duplex all process of primary server, fig. 10*).

In regard to claim 20, Park et al. disclosed a computer readable storage medium comprising computer readable code configured to carry out a method for peer recovery, the method comprising:

detecting a failure of a first computer (*fault tolerance module, fault detection, fig. 5, 503*);

registering a counterpart of the first computer (*duplexing, primary server select spare server, paragraph 0024*);

recovering the operation of the first computer by the counterpart (*transition of all functions of the primary server to the spare server, paragraph 0031*); and

unregistering the counterpart of the first computer (*registering the spare server as*

primary and register the fault-recovered server as a spare server, paragraph 0031).

In regard to claim 21, Park et al disclosed the computer readable storage medium of claim

20, the method further comprising computer readable code configured to initiate the peer

recovery automatically (*upon detecting a fault of the server, the fault recoverer executes a*

function transition from the primary server to the spare server, paragraph 0075).

In regard to claim 24, Park et al. disclosed the computer readable storage medium of

claim 20, the method further comprising blocking the recovery modules of a third computer

(*spare server selection only occurs at the start of rejuvenation, fig. 10, s103*) and the first

computer (*primary server is excluded from available server list of load balancer, fig. 10, s105*)

from registering as the counterpart of the first computer (*duplex all process of primary server,*

fig. 10).

In regard to claim 25, Park et al. disclosed a method for peer recovery, the method

comprising:

detecting a failure in a first computer (*fault tolerance module, fault detection, fig. 5, 503*);

registering a counterpart of the first computer (*duplexing, primary server select spare*

server, paragraph 0024);

recovering the operation of the first computer by the counterpart (*transition of all*

functions of the primary server to the spare server, paragraph 0031); and

unregistering the counterpart of the first computer (*registering the spare server as primary and register the fault-recovered server as a spare server, paragraph 0031*).

In regard to claim 26, Park et al. disclosed the method of claim 25, the method further comprising blocking the recovery modules of a third computer (*spare server selection only occurs at the start of rejuvenation, fig. 10, s103*) and the first computer (*primary server is excluded from available server list of load balancer, fig. 10, s105*) from registering as the counterpart of the first computer (*duplex all process of primary server, fig. 10*).

In regard to claim 28, Park et al. disclosed the method of claim 25, further comprising initiating peer recovery automatically (*upon detecting a fault of the server, the fault recoverer executes a function transition from the primary server to the spare server, paragraph 0075*).

In regard to claim 30, Park et al. disclosed an apparatus for peer recovery, the apparatus comprising:

means for detecting a failure of a first computer (*fault tolerance module, fault detection, fig. 5, 503*);

means for registering a first counterpart of the first computer (*duplexing, primary server select spare server, paragraph 0024*);

means for blocking a second counterpart from registering as the counterpart of the first computer (*spare server selection only occurs at the start of rejuvenation, fig. 10, s103*);

means for recovering the operation of the first computer by the first counterpart

(*transition of all functions of the primary server to the spare server, paragraph 0031*); and

means for unregistering the first counterpart of the first computer (*registering the spare*

server as primary and register the fault-recovered server as a spare server, paragraph 0031).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

                    12, 22   *29*
5.   Claims 15, 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Park et al. (US 2003/0079154) in further view of Belov (US 2003/0187859).

In regard to claim 12, Park et al. disclosed the system of claim 10, the second computer

further configured to initiate peer recovery responsive to an operator command.

Belov teach the system of recovering and checking large file systems in an object-based data storage system where the FSRC module may be self-executing or executed by an external command (*paragraph 0043*).

It would have been obvious to modify the system of Park et al. by adding Belov system of recovering and checking large file systems in an object-based data storage system. A person of ordinary skill in the art at the time of applicant's invention would have been motivated to make the modification because it would efficiently check a file system that has a very large number of objects (*paragraph 0010*).

In regard to claim 22, Park et al. does not teach the computer readable storage medium of claim 20, the method further comprising computer readable code configured to initiate the peer recovery responsive to an operator command.

Belov teach the system of recovering and checking large file systems in an object-based data storage system where the FSRC module may be self-executing or executed by an external command (*paragraph 0043*).

Refer to claim 12 for motivational statement.

In regard to claim 29, Park et al. does not teach the method of claim 25, further comprising initiating peer recovery responsive to an operator command.

Belov teach the system of recovering and checking large file systems in an object-based data storage system where the FSRC module may be self-executing or executed by an external command (*paragraph 0043*).

Refer to claim 12 for motivational statement.

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6.   Claims 15, 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Park et al. (US 2003/0079154) in further view of Ganesh et al. (US 6,647,510).

In regard to claim 15, Park et al. teach the system of claim 10, the second computer

further configured to recover the operation of the first computer by initializing and starting the

counterpart of the first computer (*switchover from primary server o spare server, fig. 11, s202*),

retrieving the private log data of the first computer (*transfer all process-related information to

the rejuvenation-subjected server to the spare server, paragragh 0075*).

Park et al. does not teach the system of the second computer further configured to

recover the operation of the first computer by backing out an in-flight transaction update

of the first computer, and releasing a data resource locked by the first computer.

Ganesh et al. teach the system of making available data that was locked by a dead

transaction before rolling back the entire dead transaction by implementing a roll back

transaction operation where the DBMS releases any resources held by the transaction at

the time of failure (*col. 2 lines 55-60*).

It would have been obvious to modify the system of Park et al. by adding Ganesh

et al. system of making available data that was locked by a dead transaction before rolling

back the entire dead transaction.   A person of ordinary skill in the art at the time of

applicant's invention would have been motivated to make the modification because it

would reduce the number of undo changes that need to be applied when a new transaction encounters a resources that is locked by a dead transaction *(col. 3 lines 15-20)*.

In regard to claim 23, Park et al. teach a computer readable storage medium of claim 20, the method for recovering the operation of the first computer by the counterpart further comprising:

initializing and starting the counterpart ((*switchover from primary server o spare server, fig. 11, s202)*;

retrieving private undo log data of the first computer *(transfer all process-related information to the rejuvenation-subjected server to the spare server, paragragh 0075)*;

Park et al. does not teach the system of the second computer further configured to recover the operation of the first computer by backing out an in-flight transaction update of the first computer, and releasing a data resource locked by the first computer.

Ganesh et al. teach the system of making available data that was locked by a dead transaction before rolling back the entire dead transaction by implementing a roll back transaction operation where the DBMS releases any resources held by the transaction at the time of failure *(col. 2 lines 55-60)*.

Refer to claim 15 for motivational statement.

In regard to claim 27, Park et al. teach the method of claim 25, the method of recovering the operations of the first computer by the counterpart further comprising:

initializing and starting the counterpart of the first computer (*switchover from primary*

server o spare server, fig. 11, s202);

retrieving private undo log data of the first computer (*transfer all process-related*

information to the rejuvenation-subjected server to the spare server, paragragh 0075);

Park et al. does not teach the system of the second computer further configured to

recover the operation of the first computer by backing out an in-flight transaction update

of the first computer, and releasing a data resource locked by the first computer.

Ganesh et al. teach the system of making available data that was locked by a dead

transaction before rolling back the entire dead transaction by implementing a roll back

transaction operation where the DBMS releases any resources held by the transaction at

the time of failure (*col. 2 lines 55-60)*.

Refer to claim 15 for motivational statement.

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7.   Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (US

2003/0079154) in further view of Conti et al. (US 5,291,490).

In regard to claim 17, Park et al. does not teach the system of claim 10, wherein the first

computer and the second computer communicate point-to-point, using a channel-to-channel

communication connection comprising an inbound signaling path and an outbound signaling

path.

Conti et al. teach the system of node for communication network by

implementing a logical point-to-point connections between pairs of nodes (*col. 2 lines*

55-65) where data can be transfer by an intenal or external ring (*fig. 11, 84)*.

It would have been obvious to modify the system of Park et al. by adding Conti et

al. system of node for communication network. A person of ordinary skill in the art at

the time of applicant's invention would have been motivated to make the modification

because it would increases the flexibility by permitting node to be interconnected

regardless of the physical interconnection media (*col. 1 lines 60-67 and col. 2 lines 1-2)*.

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8.   Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et

al. (US 2003/0079154) in further view of Olarig (US 6,018,810).

In regard to claim 18, Park et al. does not teach the system of claim 10, wherein the

computers use a symmetric multiprocessor configuration.

Olarig teaches the system of fault-tolerant interconnection means in a computer

system where the CPU may be a plurality of CPUs in a symmetric configuration (*fig. 1,*

102, col. 8, lines 8-11)

It would have been obvious to modify the system of Park et al. by adding Olarig

system of fault-tolerant interconnection means in a computer system. A person of

ordinary skill in the art at the time of applicant's invention would have been motivated to

make the modification because it would improve fault tolerance on a 64-bit data-width

PCI bus that may have an operating fault (*col. 4 lines 16-20*).

In regard to claim 19, Park et al. does not teach the system of claim 10, wherein the

computers use an asymmetric multiprocessor configuration.

Olarig teaches the system of fault-tolerant interconnection means in a computer

system where the CPU may be a plurality of CPUs in an asymmetric configuration (*fig. 1,*

102, col. 8, lines 8-11)

Refer to claim 18 for motivational statement.

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Conclusion

9.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure. See PTO 892.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Loan Truong whose telephone number is (571) 272-2572. The

examiner can normally be reached on M-F from 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Scott Baderman can be reached on (571) 272-3644. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

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Loan Truong
AU 2114
Patent Examiner

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